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IB Docket No. 02-364

Federal Communications Commission
Office of Secretary

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^{1/} Iridium Applications for Satellite Earth Station Modification, File Nos. SES-MOD-20050927-01329/01330; Call signs E960132/E960622 (filed Sept. 27, 2005)(“*Original Applications*”); Iridium Amendment to Application for Satellite Earth Station Modification, File No. SES-AMD-20051222-01791/01792 (filed Dec. 22, 2005)(Public Notice Report No. SES-00781, Jan. 4, 2006) (“*Amended Applications*”).

On November 14, 2005, Globalstar filed a petition to deny Iridium's original modification applications.^{2/} On December 22, 2005, Iridium concurrently filed the *Amended Applications*, as well as an opposition to Globalstar's petition to deny.^{3/} Although the *Amended Applications*, which were placed on Public Notice on January 4, 2006, provide reduced power, antenna gain, and effective isotropic power ("EIRP") levels for the proposed equipment,^{4/} as discussed below, the applications are deficient in that they fail entirely to address the legitimate threat of interference that operation of the devices will cause to Globalstar's licensed MSS services in frequency bands exclusively assigned to Globalstar and in bands in which Iridium and Globalstar are required to coordinate their operations. These applications should be held in abeyance pending a coordination agreement between Iridium and Globalstar, pursuant to the Commission's L-band sharing plan,^{5/} and clarification of certain technical aspects discussed below.

As an initial matter, the *Amended Applications* are an amendment to a MET authorization that proposes *terrestrial* operation in the band 1616-1626.5 MHz.^{6/} While it is the case that Iridium's satellites are capable of operating, but not currently authorized to operate, across the full 1616-1626.5 MHz band, Iridium's METs are limited to the 1618.25-1626.5 MHz band.

^{2/} Globalstar Petition to Deny, Iridium Satellite LLC and Iridium Carrier Services LLC Earth Station Modification Applications as Amended, *et al*, File Nos. SES-MOD-20050927-01329/01330 and SES-STA-20050930-01349/01350 (filed Nov. 14, 2005).

^{3/} Iridium Opposition to Petition to Deny, Iridium Satellite LLC and Iridium Carrier Services LLC Earth Station Modification Applications as Amended, *et al*, File Nos. SES-MOD-20050927-01329/01330 and SES-STA-20050930-01349/01350 (filed Dec. 22, 2005) ("*Iridium Opposition*").

^{4/} See *Amended Applications*.

^{5/} See Report and Order, Fourth Report and Order and Further Notice of Proposed Rulemaking, *In the Matter of Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands; Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems*, 19 FCC Rcd 13356, 13336-81 ¶¶ 44-53 (2004) ("*L-Band Sharing Order*").

Furthermore, the 1618.25-1621.35 MHz portion of this band is subject to coordination with Globalstar and subject to a pending petition for reconsideration in another proceeding.^{7/} Coordination has not occurred, and the *Amended Applications* establish no basis for expanding the frequency range of Iridium's METs. Therefore, the Commission should deny the applications to the extent that they seek more extensive use of spectrum than is currently authorized for Iridium's METs.

In its opposition to Globalstar's original petition to deny, Iridium states that the applications "do not propose to operate the equipment on frequencies in the 1618.25-1621.35 MHz band that have not been coordinated with Globalstar."^{8/} As noted above, not only do the applications propose operation below 1618.25 MHz, but in fact Iridium has not to date coordinated any use of the 1618.25-1621.35 MHz band with Globalstar; specifically, Iridium has not responded to Globalstar's data showing harmful interference that continues in Channels 7 and 8 in the Clifton gateway from regular (non-repeater) Iridium users when both systems are heavily loaded.^{9/} Thus, as Iridium is well aware, Iridium has provided Globalstar with no assurance that the fixed repeaters, which may cause even higher interference levels than its existing METs, will be coordinated with Globalstar in any of the shared frequencies between 1618.25-1621.35 MHz.

^{6/} See *Amended Applications* at Form 312, Nos. 24, E43/44, E50, E52/53.

^{7/} Globalstar has petitioned the Commission for reconsideration of the sharing requirement to the extent that the shared portion begins at 1618.25, rather than 1618.725. See *Petition for Reconsideration of Globalstar LLC*, IB Docket No. 02-364 and ET Docket No. 00-258 (filed September 8, 2004). In order not to prejudice the outcome of that proceeding, the Bureau should establish the lower limit of Iridium's operation in this application to 1618.725 MHz. See *L-Band Sharing Order* at 13336-81 ¶¶ 44-53.

^{8/} See *Iridium Opposition* at 2-3.

^{9/} See Letter to Marlene H. Dortch, Secretary, Federal Communications Commission, from William F. Adler, Globalstar Vice President – Legal and Regulatory Affairs (Jan. 9, 2006) filed in IBFS File Nos. SAT-STA-20050923-00180/181; Letter to Marlene H. Dortch, Secretary, Federal Communications Commission, from William T. Lake, Counsel for Globalstar (Oct. 17, 2005), filed in IBFS File Nos. SAT-STA-20050923-00180/181.

In addition, even as amended, the applications still fail to demonstrate how Iridium's proposed operations will not cause harmful interference to Globalstar's licensed services without the required coordination. Although the applications do include a technical showing that purports to demonstrate that Iridium will meet the out-of-band emissions limits necessary to protect the radionavigation satellite service in the 1559-1610 MHz band, they fail to provide any technical showing that the proposed operations will not cause harmful interference to Globalstar's licensed operations in the 1610-1621.35 MHz band.

Specifically, to the extent that Iridium's new repeaters operate outside Globalstar's allocated frequency bands of 1610-1621.35 MHz, it is necessary to suppress each Iridium carrier's out-of-band emissions by 14.16 dB as shown in Table 1 in the Appendix. However, even with the now-proposed EIRP levels of 10.3 dBW (reduced from the 18.5 dBW previously requested by Iridium), as the same table shows, operation of Iridium repeaters co-frequency in Globalstar's frequency channels, such as in the frequency range 1616-1621.35 MHz,^{10/} still will cause the harmful interference from Iridium into Globalstar to greatly exceed (by 14.16 dB) Globalstar's allowable 3% degradation of service quality. Table 2 in the Appendix shows the effect of a medium traffic level of Iridium repeaters into Globalstar. Even with the new EIRP of Iridium repeaters (10.3 dBW), Iridium's interference exceeds Globalstar's allowable 3% degradation in service quality by about 7 dB, a very significant increase. Furthermore, Iridium has failed to demonstrate that the out-of-band RF emission from the proposed amplifier equipment in any 1 MHz of the frequency band falling within the Globalstar frequency allocation of 1610-1621.35 MHz is suppressed by at least 14.16 dB relative to its peak value.^{11/}

^{10/} We note that Iridium does not have authority to use the portion of the band between 1616 and 1618.25 MHz for METs or other terrestrial applications, and that Globalstar strongly opposes any such grant of authority. *See, e.g.,* Comments of Globalstar filed in IB Docket No. 02-364 (filed Sept. 8, 2004).

^{11/} *See* Appendix, Table 1.

Globalstar also requests that the Commission require Iridium to clarify the EIRP of its proposed repeaters. It is unclear from Iridium's applications whether or not the repeaters will repeat more than one carrier, and to the extent that the repeater does in fact repeat more than one carrier, it is not clear if the reported EIRP is per carrier or if it is the total EIRP for the device.

Finally, Globalstar also asks that the Commission deny any further requests for extension of Iridium's special temporary authority ("STA"), or new STA requests to operate the proposed devices. The original STA, which was granted on July 8, 2004, and subsequently extended six times (most recently Iridium filed an extension on December 29, 2005 for its STA which expired December 30, 2005),^{12/} was based on prior applications for authority to operate the proposed devices that were dismissed because Iridium had failed to provide required technical information and demonstrate compliance with Commission's rules for METs.^{13/} Since the underlying applications on their face are not grantable absent the necessary prior coordination with Globalstar, the Commission should refuse to grant any further requests for extension of the STA. At a minimum, any future STA grants should expressly limit Iridium's operations to the 1621.35-1626.5 MHz band and to devices that comply with the out-of-band emissions restrictions.

Conclusion

For all of these reasons, Globalstar requests that the Commission require that Iridium provide additional technical information regarding the proposed devices, and require that Iridium coordinate the use of the proposed devices with Globalstar. Until such clarification and

^{12/} Iridium Application for Special Temporary Authority, File No. SES-STA-20040524-00717 (filed May 24, 2004) (granting the original request for STA from July 8, 2004 through September 8, 2004). Iridium Application for Extension of Special Temporary Authority, File Nos. SES-STA-20051229-01812/1813 (filed Dec. 29, 2005).

^{13/} See Letter from Scott Kotler, Chief, System Analysis Branch, Satellite Division, International Bureau, to Jennifer D. Hindin, Counsel to Iridium (DA 05-1548) (May 27, 2005) (dismissing Iridium's repeater applications, File Nos. SES-MOD-20050408-00401, SES-MOD-20050408-00402).

coordination takes place, Globalstar requests that the Commission (1) deny the *Amended Applications*, and (2) deny any further request by Iridium to extend the special temporary authority to operate the devices proposed in the applications, at a minimum to the extent that Iridium seeks to operate in the 1621.35-1626.5 MHz band without meeting the out-of-band emissions restrictions in the Globalstar operations band.

Respectfully Submitted,



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APPENDIX

Table 1

Interference from Iridium Repeaters at capacity into Globalstar (shows effects of in-band interference, as well as required OOB emissions suppression if only OOB interference)

Iridium repeater: interference into Globalstar

Frequency	1618 MHz
Number of Iridium beams per Globalstar beam	3
Number of Iridium carriers in 1.23 MHz	88.553
Average Iridium transmit power per carrier	10.3 dBW
Typical range at 40 deg. Elev.	1952 km
Path loss	-162.43 dB
<u>At Globalstar Satellite Input</u>	
Interf. density per beam from Iridium users rcvd at Globalstar sat. inq	-193.56 dBW/Hz
Typical self interference density	-193 dBW/Hz
Typical self interference plus thermal noise density	-192.49 dBW/Hz
Allowable % degradation due to external interference	3%
Allowable total interf. (for 3% degradation of self-interf.plus noise)	-192.36 dBW/Hz
Allowable external interf. (for 3% degradation of self-interf.plus noise)	-207.71 dBW/Hz
OOB emission suppression of Iridium carriers	14.16 dB

Table 2

Interference calculation from Iridium repeaters (when system is at medium load) with peak EIRP into Globalstar

Iridium repeater: interference into Globalstar

Frequency	1618 MHz
Number of Iridium beams per Globalstar beam	3
Number of Iridium carriers in 1.23 MHz	18
Average Iridium transmit power per carrier	10.3 dBW
Typical range at 40 deg. Elev.	1952 km
Path loss	-162.43 dB
<u>At Globalstar Satellite Input</u>	
Interf. density per beam from Iridium users rcvd at Globalstar sat. in	-200.48 dBW/Hz
Typical self interference density	-193 dBW/Hz
Typical self interference plus thermal noise density	-192.49 dBW/Hz
Allowable % degradation due to external interference	3%
Allowable total interf. (for 3% degradation of self-interf.plus noise)	-192.36 dBW/Hz
Allowable external interf. (for 3% degradation of self-interf.plus noise)	-207.71 dBW/Hz
OOB emission suppression of Iridium carriers	7.24 dB

CERTIFICATE OF SERVICE

I, Josh L. Roland, do hereby certify that a copy of the foregoing Petition To Deny filed by Globalstar LLC was served by hand on February 3, 2006, on the following parties (marked with an asterisk (*)) or first class United States mail, postage prepaid:

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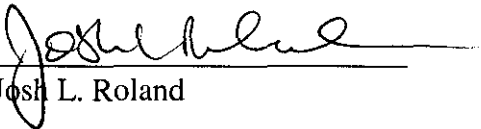
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